GEOPHYSICAL REPORT

on the

JB 1 to 12 Claims

Logan Lake Area
Kamloops Mining Division

92I-7E
(50° 27' N. Lat., 120° 37' W. Long.)

for

GRANT F. CROOKER
Box 404
Keremeos, B.C.
V0X 1N0
(OWNER AND OPERATOR)

by

GRANT F. CROOKER, B.Sc., P.Geo,
CONSULTING GEOLOGIST

May, 1992

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SUMMARY AND RECOMMENDATIONS

The JB property consists of 12 two post mineral claims located in the Kamloops Mining Division and is located approximately 14 kilometers east of Logan Lake in southern British Columbia. Grant Crooker of Keremeos, B.C. is the owner of the property.

The general area of Kamloops-Merritt has been the scene of intense exploration and mining activity for over 100 years. The exploration culminated with the discovery and development of the bulk tonnage copper-molybdenum deposits at Craigmont, Afton and the Highland Valley.

Exploration has been carried out in the vicinity of the JB claims since the late 1880's with six mineral occurrences (figure 5) having been documented. These include the Bertha/Molly, Chatrands, JHC, Rhyolite, Pom Pom and Plug (Meadow Creek). Shaft sinking, trenching, drilling, prospecting and geological, geochemical and geophysical surveys have been carried out on the showings.

The JB claims cover the area of the Plug showing, now called Meadow Creek. Upper Triassic Nicola volcanic and sedimentary rocks with minor intrusives underlie the claims. Percussion drilling was carried out over coincidental geological, geochemical and geophysical targets in 1972 to test for copper and silver? mineralization. The results are unknown but are presumed to be unsuccessful.

During the period 1986 through 1988 Western Resource Technologies Inc. carried out geological mapping, prospecting, soil geochemical sampling and magnetometer and VLF-EM surveying over the Meadow Creek Grid (figure 4). These programs outlined a number of weak to moderate gold soil geochemical anomalies with values of up to 700 ppb gold. Several silver and copper soil geochemical anomalies were also outlined.

Prospecting and sampling of the old trenches at the "west central" zone revealed weak to moderate carbonate+quartz±mariposite alteration over several hundred meters with a grab sample yielding gold and silver values of 7500 ppb (0.282 oz/ton) and 67.5 ppm respectively. Two soil samples taken from the same trench as the rock sample gave 70 and 150 ppb gold.

Two grab samples taken of quartz±carbonate±mariposite schist with galena and sphalerite from the "south central" zone yielded 605 and 482 ppb gold, and 165.1 and 258.4 ppm silver.

The 1992 program consisted of establishing and re-establishing grid lines on the "south central zone" of the Meadow Creek grid and carrying out magnetometer and VLF-EM surveys on them.

Two magnetic features were outlined by the survey. A prominent, roughly circular magnetic high centered at 8825N on line 19650E may be the expression of a buried intrusive body. A number of northwest-southeast trending magnetic lows form a linear feature cutting across the central portion of the grid. This feature may represent a fault zone.

A large number of weak to moderate conductors were delineated by the VLF-EM survey. However no causes are evident for the conductors due to lack of outcrop or other geological information.

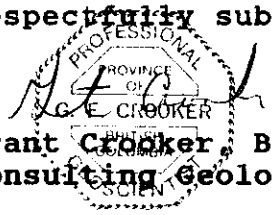
Recommendations are as follows:

1) The grid should be extended over the remainder of the property to allow completion of the magnetometer and VLF-EM surveys.

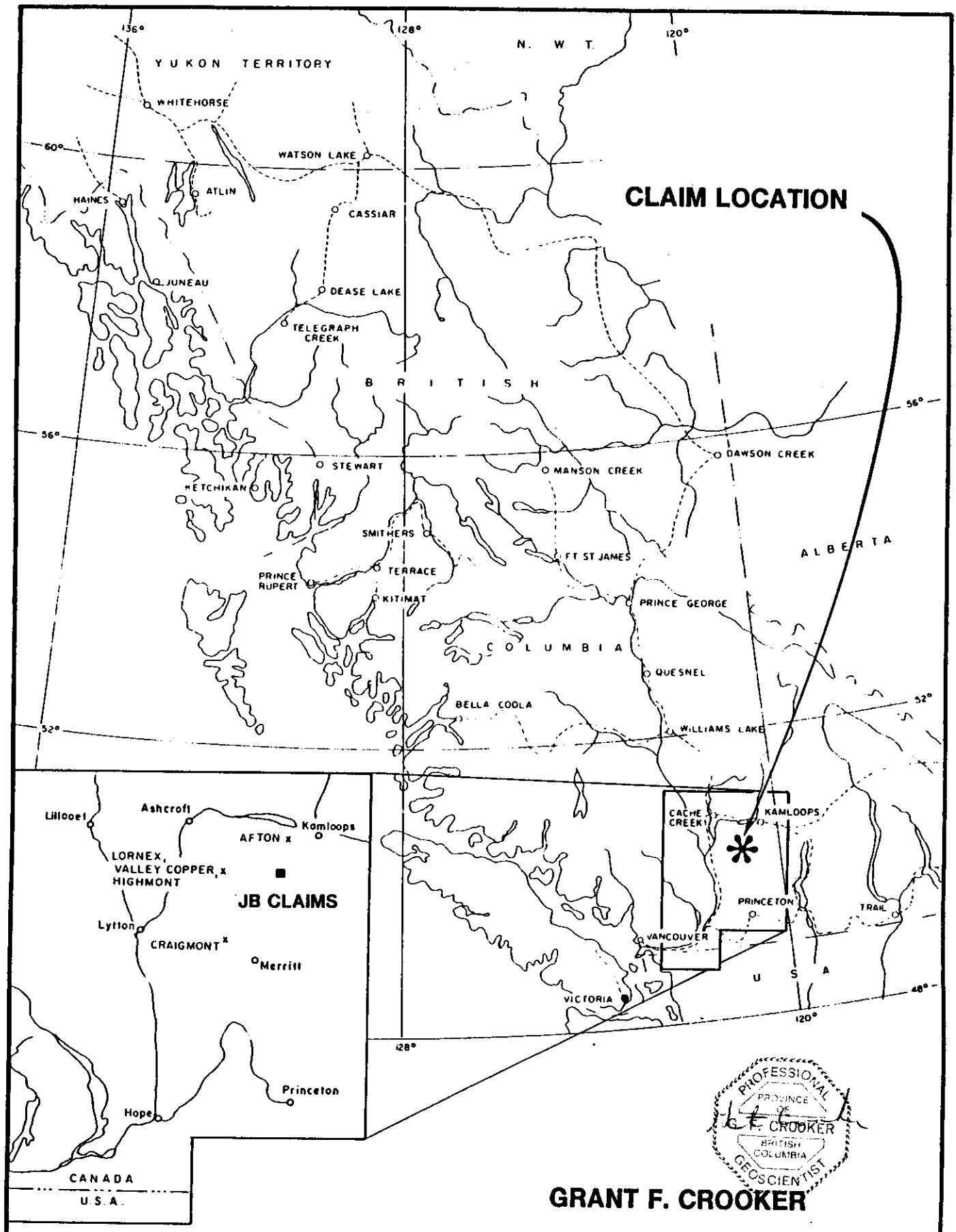
2) Geological mapping should be carried out over the property and the geochemical and geophysical anomalies should be checked by prospecting.

3) The geochemical anomalies and old trenches on the "west central" and "south central" zones of the Meadow Creek Grid should be evaluated by I.P. surveying, with follow up trenching and/or drilling.

Respectfully submitted,



Grant Crooker, B.Sc., P.Geo.,
Consulting Geologist



PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
G. F. CROOKER
GEOSCIENTIST

GRANT F. CROOKER

JB CLAIMS

LOCATION MAP

N.T.S. 92 I-7E KAMLOOPS M.D., B.C.

MAY, 1992 **FIGURE 1.0**

1.0 INTRODUCTION

1.1 GENERAL

Field work was carried out on the JB claims by Grant Crooker, geologist, from April 27 to April 29, 1992.

The work program consisted of establishing grid lines and carrying out VLF-EM and magnetometer surveying.

1.2 LOCATION AND ACCESS

The property (Figure 1) is located approximately 14 kilometers east of Logan Lake in southern British Columbia. The property lies between 50°26'20" and 50°27'10" north latitude and 120°35'45" and 120°38" west longitude (NTS 92I-7E).

Excellent access is given to the property by a network of roads. The Logan Lake-Kamloops Highway passes 500 meters north of the claims and the Surrey Lake access road turns off this highway 14 kilometers east of Logan Lake and cuts through the center of the claims. Several four wheel drive roads cover the entire claim block. The Coquihalla Highway cuts across the southeastern portion of the claims.

1.3 PHYSIOGRAPHY

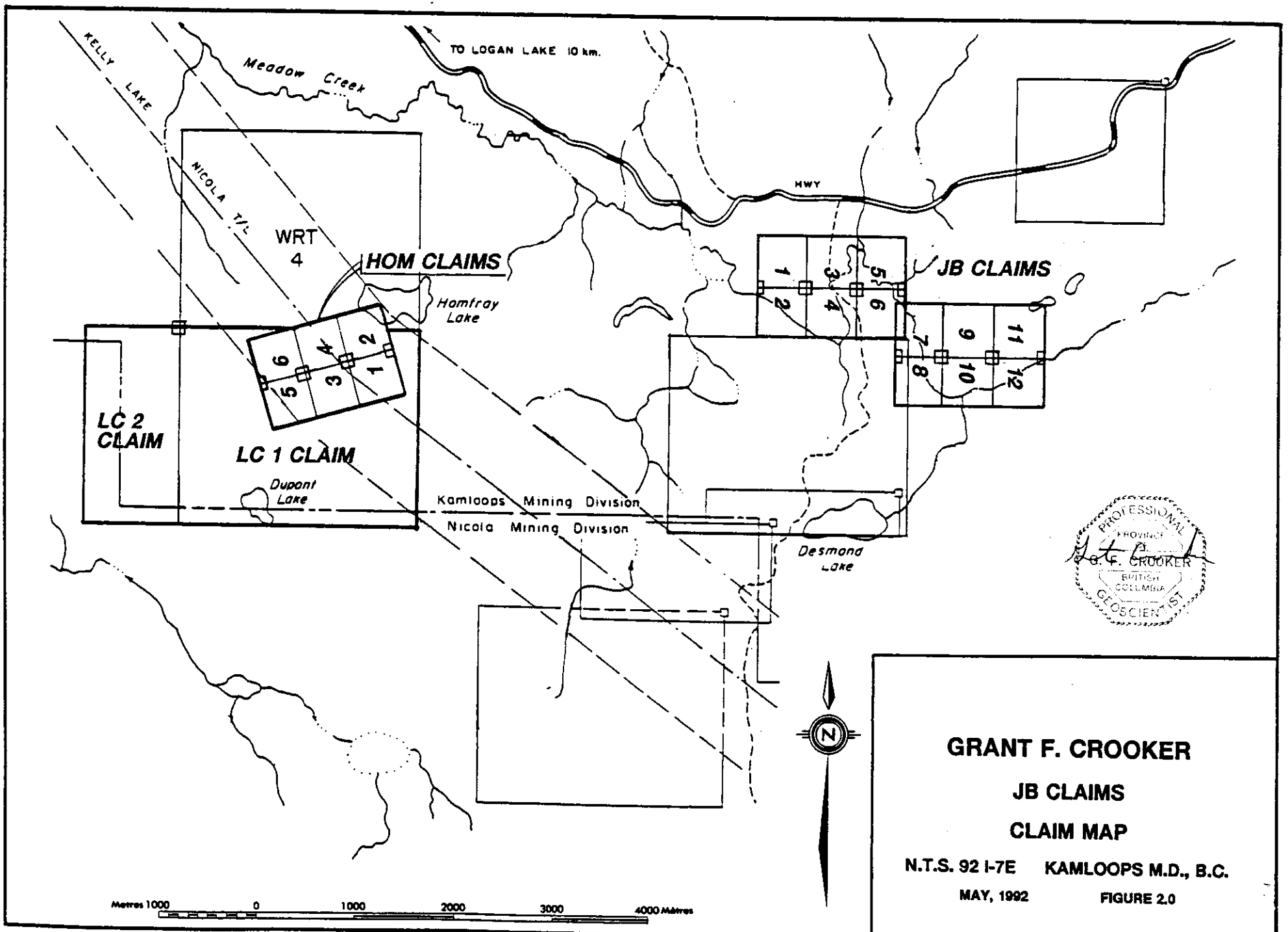
The property is located in the Interior Plateau of southern British Columbia. Topography is gentle and elevation varies from 1180 to 1285 meters above sea level. Meadow Creek drains through the claims and several swamps and meadows are found on the property. Snowfall is not excessive and water is usually available from the creek and swamps.

Vegetation varies from swamps to open grassy meadows to a forest cover of jackpine and fir trees.

1.4 PROPERTY AND CLAIM STATUS

The JB mineral (figure 2) are owned by Grant Crooker of Keremeos, B.C..

The property consists of 12 two post claims and is located in the Kamloops Mining Division.



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JB CLAIMS

CLAIM MAP

N.T.S. 92 I-7E KAMLOOPS M.D., B.C.

MAY, 1992 FIGURE 2.0

Claim	Units	Mining Division	Tenure Number	Record Date	Expiry Date
JB 1	1	Kamloops	219899	05/08/91	05/08/95*
JB 2	1	Kamloops	219900	05/08/91	05/08/95*
JB 3	1	Kamloops	219901	05/08/91	05/08/95*
JB 4	1	Kamloops	219902	05/08/91	05/08/95*
JB 5	1	Kamloops	219903	05/08/91	05/08/95*
JB 6	1	Kamloops	219904	05/08/91	05/08/95*
JB 7	1	Kamloops	219905	05/11/91	05/11/95*
JB 8	1	Kamloops	219906	05/11/91	05/11/95*
JB 9	1	Kamloops	219907	05/11/91	05/11/95*
JB 10	1	Kamloops	219908	05/11/91	05/11/95*
JB 11	1	Kamloops	219909	05/11/91	05/11/95*
JB 12	1	Kamloops	219910	05/11/91	05/11/95*

* Upon Acceptance of this report.

1.5 AREA AND PROPERTY HISTORY

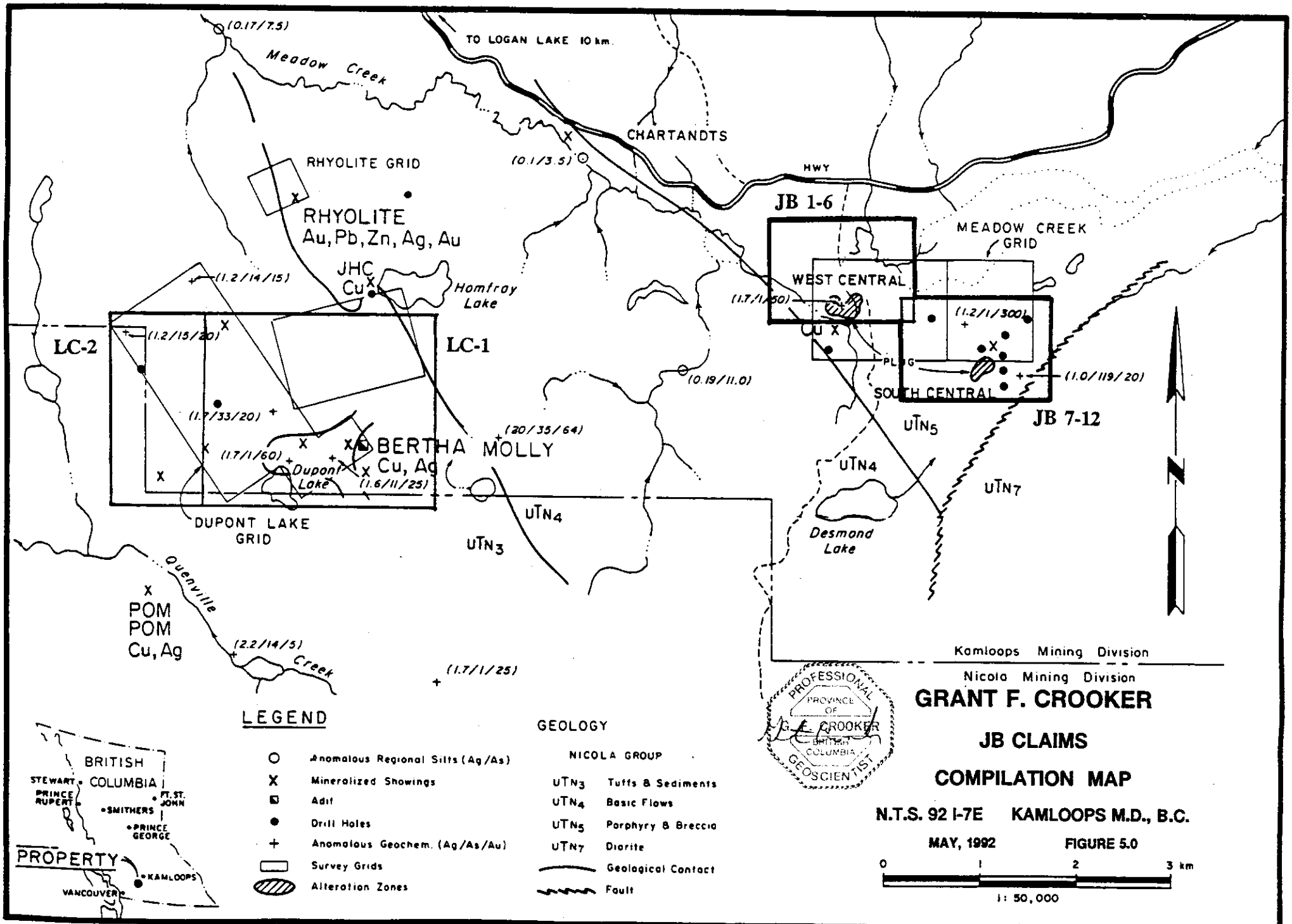
The area encompassed by a triangle with apices at Ashcroft, Kamloops and Merritt has been, over the past century the scene of intense exploration activity. This activity culminated with the discovery and development of the porphyry copper molybdenum mines in the Highland Valley, the Craigmont mine near Merritt and the Afton mine near Kamloops. Earlier smaller mines with good copper-gold values were worked south of Kamloops Lake.

Prospecting and development has been carried out in the vicinity of the JB claims for almost 100 years. The documented showings near the property (figure 5) are the Bertha/Molly, JHC, Pom Pom, Chatrandts and Rhyolite. The JB claims cover the former Plug showing, also now referred to as the Meadow Creek grid.

Shaft sinking, trenching, drilling, prospecting, and geophysical and geochemical surveys have been carried out on the properties near the JB claims. A brief summary of the showings is given below.

Bertha/Molly Showing

This showing was first staked in 1888 by Wright and Fletcher. A shaft was sunk on the Main Showing (No. 1 Showing) and lodes 3 feet to 4.5 feet in thickness were discovered. In 1928 Meadow Creek Mines worked the Number 1 Showing and a few tons of high grade copper ore were sorted for shipment. Dunmore Mines Ltd. carried out road building, trenching and diamond drilling in 1954. A small mill was erected but the supergene copper minerals were not amenable to gravity concentration. Dunmore Mines drilled 17 diamond drill holes in 1957 and Hemsworth reported that the holes encountered only sparse mineralization.


(0.17/7.5)
Meadow Creek
TO LOGAN LAKE 10 km.
CHARTANDTS
HWY
(0.1/3.5)
RHYOLITE GRID
RHYOLITE
Au, Pb, Zn, Ag, Au
JB 1-6
MEADOW CREEK
GRID
JHC
Cu
Homfray
Lake
(1.2/14/15)
WEST CENTRAL
(1.7/1/50)
(1.2/1/300)
LC-2
(1.2/15/20)
LC-1
PLUG
(1.0/119/20)
SOUTH CENTRAL
(0.19/11.0)
JB 7-12
(1.7/33/20)
uTN5
(20/35/64)
BERTHA
MOLLY
Cu, Ag
(1.7/1/60)
Dupont
Lake
(1.6/11/25)
uTN4
uTN7
DUPONT LAKE
GRID
uTN4
uTN3
Desmond
Lake
Queerville
POM
POM
Cu, Ag
(2.2/14/5)
Creek
(1.7/1/25)
Kamloops Mining Division
Nicola Mining Division
LEGEND
GEOLOGY
NICOLA GROUP
Anomalous Regional Silts (Ag/As)
Mineralized Showings
Adit
Drill Holes
Anomalous Geochem. (Ag/As/Au)
Survey Grids
Alteration Zones
uTN3 Tuffs & Sediments
uTN4 Basic Flows
uTN5 Porphyry & Breccia
uTN7 Diorite
Geological Contact
Fault
BRITISH
COLUMBIA
STEWART
PRINCE
RUPERT
SMITHERS
FT. ST.
JOHN
PRINCE
GEORGE
PROPERTY
KAMLOOPS
VANCOUVER
PROFESSIONAL
ENGINEER
PROVINCE
OF
BRITISH
COLUMBIA
GEOSCIENTIST
GRANT F. CROOKER
JB CLAIMS
COMPILATION MAP
N.T.S. 92 I-7E KAMLOOPS M.D., B.C.
MAY, 1992
FIGURE 5.0
0
1
2
3 km
1: 50,000

Highhawk Mines Ltd. and Consolidated Standard Mines Ltd. acquired ground in the vicinity in 1972. Approximately 17 line miles of grid was established northwest of Dupont Lake to encompass Showings No.2 and No.4. Soil geochemical and Induced Polarization surveys were conducted and two diamond drill holes totalling 750 feet were drilled to test the IP anomalies flanking copper geochemical responses. Both holes encountered fracture related and disseminated pyrite with no visible copper mineralization. The holes were not assayed and the claims were allowed to lapse.

JHC Showing

Vanex Minerals Ltd. acquired claims covering the JHC showing in 1958. They conducted magnetic surveys and physical work under the direction of Hill, Stark and Associates, Consulting Engineers. In 1959 Vanex drilled two holes in the JHC Showing area:

Hole No. 1

This hole was located approximately 3000 feet north of Homfray Lake and was drilled verticaly to a depth of 358 feet to test a magnetic high. The lower portion of the hole encountered a silicious, altered grey-green rock with considerable pyrite. No assays were reported but the recommendation was made to extend the hole to 1000 feet.

Hole No. 2

This hole was located on the west shore of Homfray Lake and was drilled at minus 45 degrees to a depth of at least 293 feet. Altered volcanics were noted but no mineralization was reported and no reason was given for drilling the hole.

Craigmont Mines Limited staked claims in the area of the JHC showing in 1970. A small survey consisting of geological mapping, geochemical sampling and magnetic and IP surveying was conducted. Two holes totalling 800 feet were drilled but the location and results of the drilling are unknown.

Pom Pom Showing

Newmont Mining Corporation of Canada staked the Pom Pom claims in 1973 after copper mineralization grading 0.17% Cu was discovered. A small grid was established and mapping, geochemical sampling and magnetic and IP surveying (one line mile) were conducted. Follow-up investigations were not conducted.

Chatrandts Showing

The Minister of Mines Report for 1916 describes the showing as consisting of several deep open cuts and a 40 foot long adit. The location is not well documented and no further information is available on the showing.

The JB claims cover the old Plug Showings, now referred to as the Meadow Creek "west central" and "south central" zones. A description of the historical information available on the Plug Showing is given below.

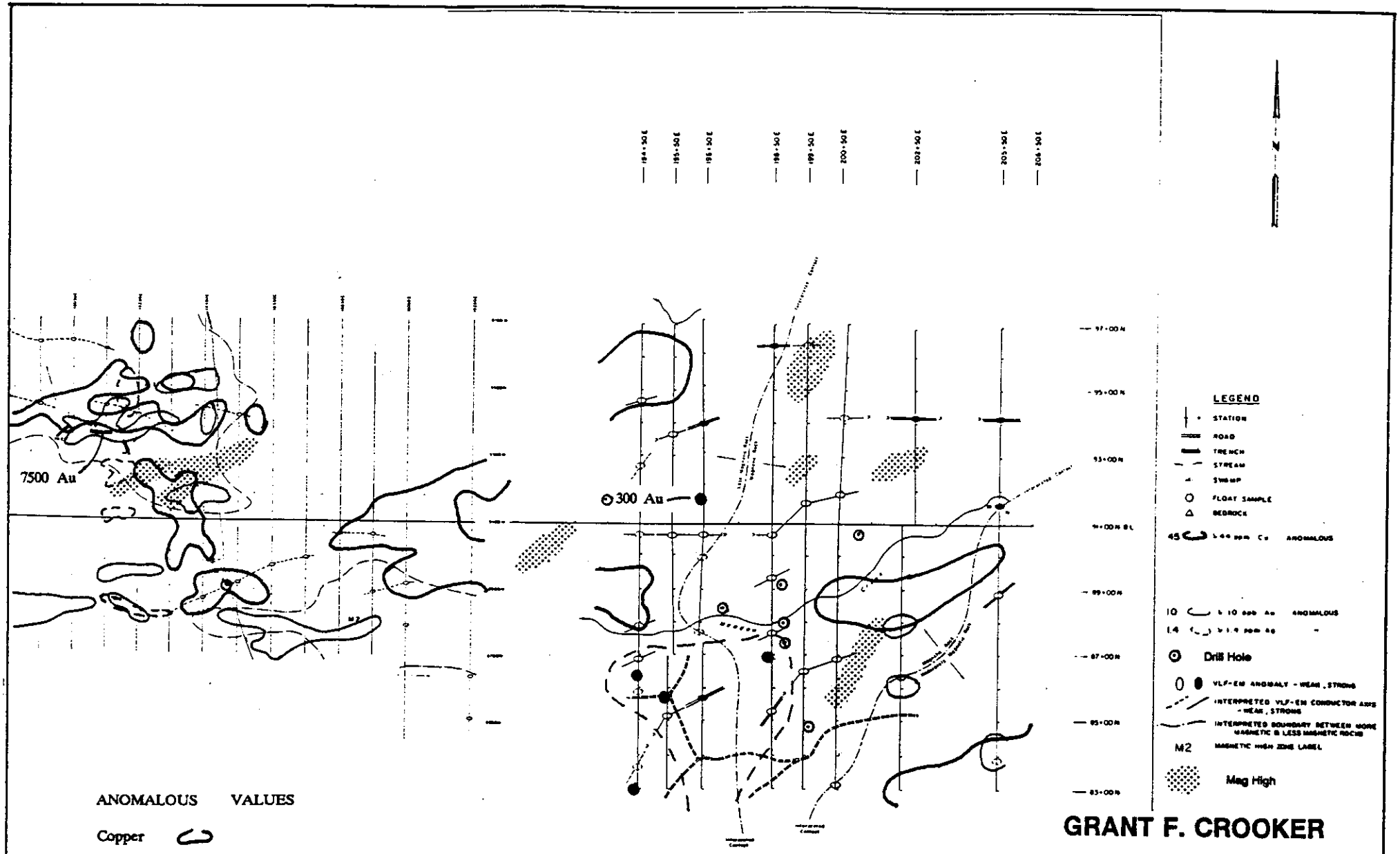
Plug Showing

In 1972 Texada Mines Ltd. acquired the claims in the area of the Plug showing. Texada conducted geological mapping, magnetic and induced polarization surveying and soil geochemical sampling (Cu, Zn, Ag) over 14 line miles of grid. The coincidental targets were percussion drilled with eight holes totalling 1400 feet. The results are not documented and presumed to be unsuccessful in locating ecomomic concentrations of copper.

During the period 1985 through 1988 Western Resource Technologies Inc. carried out extensive work programs on the Rhyolite (figure 5), Dupont Lake and Meadow Creek grids and associated showings. A silt sampling program was carried out over all drainages in the vicinity of the grids (formerly WRT claims). Soil and rock geochemical sampling, prospecting and magnetic and VLF-EM surveying were carried out over the grids. Anomalous copper, lead, zinc, gold, silver and arsenic values were found in silt and soil samples. As well, a number of VLF-EM conductors and magnetic trends were found.

The program on the Meadow Creek grid (figure 4) outlined a number of weak to moderate gold geochemical anomalies with values of up to 700 ppb gold. Several silver and copper geochemical anomalies were also outlined. Prospecting and sampling of the old trenches at the "west central zone" revealed weak to moderate carbonate+ quartz±mariposite alteration over several hundred meters, with a grab sample yielding gold and silver values of 7500 ppb (0.282 oz/ton) and 67.5 ppm respectively. Several soil samples taken from the same trench as the anomalous rock sample gave 70 and 150 ppb gold.

Two grab samples taken of quartz±carbonate±mariposite schist with galena and sphalerite from the "south central zone" yielded 605 and 482 ppb gold, and 165.1 and 258.4 ppm silver.



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JB CLAIMS

INTERPRETATION MAP

N.T.S. 92 I-7E KAMLOOPS M.D., B.C.

MAY, 1992 FIGURE 4.0

2.0 EXPLORATION PROCEDURE

During this program grid lines were established on the Meadow Creek grid and VLF-EM and magnetometer surveys were carried out over the grid.

GRID PARAMETERS

-baseline direction east-west
-survey lines perpendicular to baseline
-survey line separation 100 meters
-survey station spacing 25 meters
-survey total - 6.25 kilometers

GEOPHYSICAL SURVEY PARAMETERS

TOTAL FIELD MAGNETIC SURVEY

-survey line separation 100 meters
-survey station spacing 25 meters
-survey total - 6.25 kilometers
-measured total magnetic field in nanoteslas (gammas)
-instrument - Scintrex MP-2 magnetometer
-instrument accuracy ± 1 nanotesla

Readings were taken along the baseline to obtain standard readings for all baseline stations. All loops ran off the baseline were then corrected to these standard values by the straight line method. The operator faced north for all readings.

The total field magnetic contours were plotted on figure 6 at a scale of 1:5,000 and the data listed in appendix II.

VLF-EM SURVEY

-survey line separation 100 meters
-survey station spacing 25 meters
-survey total - 5.75 kilometers
-transmitting station - Seattle - 24.8 KHz
-direction faced - northwesterly
-instrument - Geonics EM-16
-in-phase (dip angle) and out-of-phase (quadrature) components measured in percent at each station

The VLF-EM profiles were plotted on figure 7 at a scale of 1:5,000 and the data listed in appendix II.

3.0 GEOLOGY AND MINERALIZATION

3.1 GEOLOGY

The property lies within the Intermontane Belt of the Canadian Cordillera and is underlain by Triassic Nicola volcanic rocks. This belt of Nicola volcanics are in contact with the Jurassic Guichon Batholith to the west and the Jurassic Nicola Batholith to the east.

Most of the JB claims are underlain by the Nicola Group volcanics of Upper Triassic age (Figure 3) and these rocks are subdivided into three sub-units (UTN4, UTN5 and UTN7).

UTN5

Most of the property is underlain by this unit which is an augite porphyry, augite-plagioclase porphyry volcaniclastic breccia and tuff with interbedded argillite.

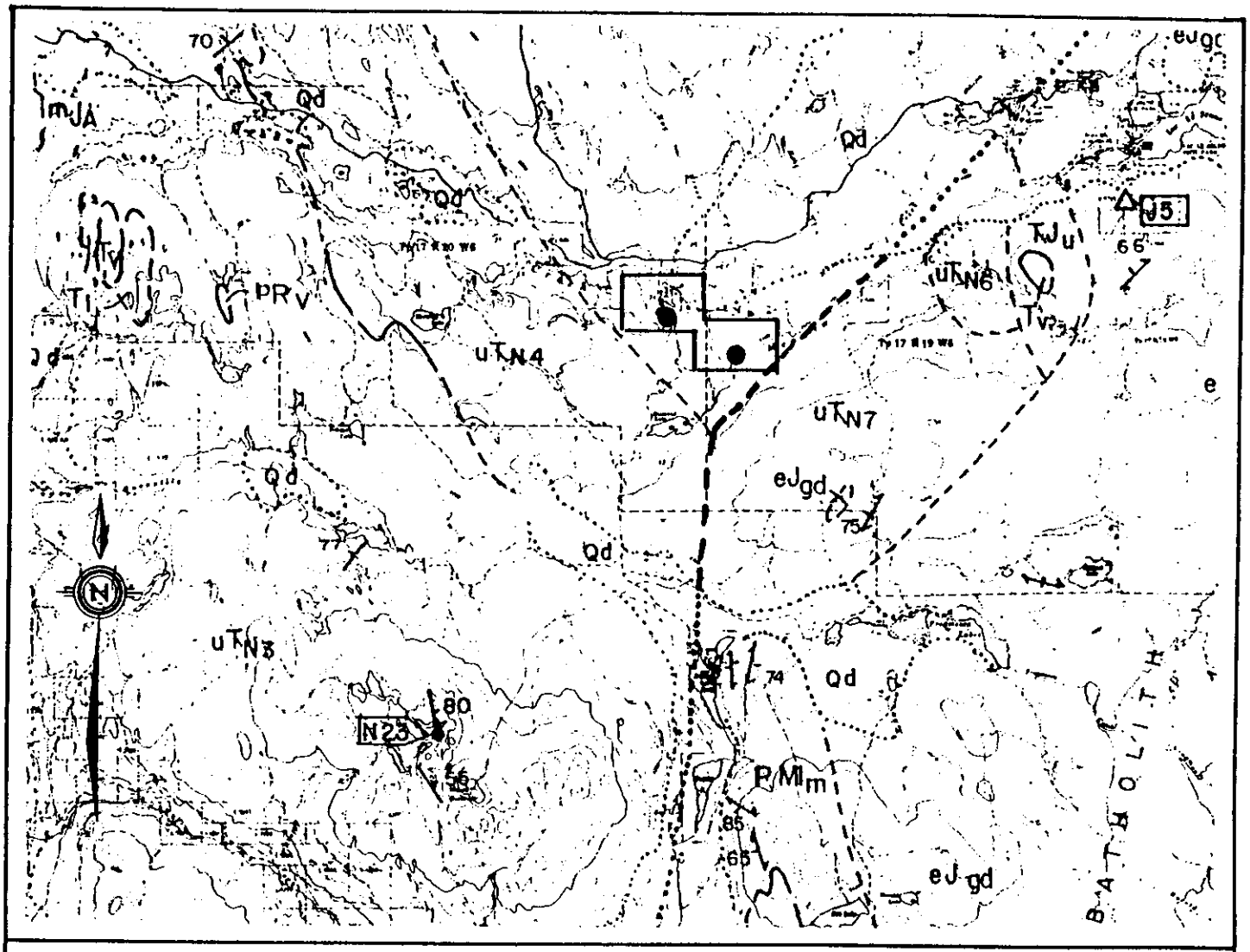
UTN4

A small portion of the JB claims are underlain by this unit along the western claim boundary. The unit is an aphanitic pillowed basic flow.

UTN7

A small portion of the JB claims are underlain by this unit along the eastern claim boundary. The unit is a variably foliated, diorite, amphibolite, metasedimentary rocks, probably equivalent to UTN5 and UTN6 and associated with Nicola, Wildhorse and Penask batholiths. It is in fault contact with UTN5.

A number of small sills and/or dykes of feldspar porphyry are associated with mineralization on the claims.



L E G E N D

KARNIAN AND NORIAN

- uT_N — NICOLA GROUP: undifferentiated
- $uT_{N1,1a}$ — NICOLA GROUP: basic to acidic, mainly volcaniclastic rocks and intercalated argillite; 1a acidic flows and volcaniclastics; local schistose equivalents mainly along Thompson River valley
- uT_{N2} — NICOLA GROUP: carbonate
- uT_{N3} — NICOLA GROUP: plagioclase, plagioclase-augite intermediate pyroclastic and epiclastic breccia, conglomerate, tuff, sandstone, local shale; carbonate clasts common. Local augite porphyry bodies probably feeders to N5 volcanics
- uT_{N4} — NICOLA GROUP: aphanitic, pillowed basic flows
- uT_{N5} — NICOLA GROUP: augite porphyry, augite-plagioclase porphyry volcaniclastic breccia and tuff; interbedded argillite
- uT_{N6} — NICOLA GROUP: argillite, siltstone, volcanic sandstone, local intercalated tuff. Rocks along North Thompson River contain interbedded chert pebble conglomerate, chert arenite local carbonate, and minor augite/hornblende porphyry. Northeast of Kamloops, these strata are as old as Middle Triassic
- uT_{N7} — NICOLA GROUP: variably foliated diorite, amphibolite, metasedimentary rocks, probably equivalent to N5, N6; associated with Nicola, Wild Horse and Pennask Batholiths

——— Geological boundary (defined, approximate, assumed)

——— Fault (defined, approximate, assumed, extension beneath drift)

0 5

KILOMETRES

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GRANT F. CROOKER

JB CLAIMS

GEOLOGY MAP

N.T.S. 92 I-7E KAMLOOPS M.D., B.C.

MAY, 1992 FIGURE 3.0

● PLUG SHOWINGS (Cu-Au)

3.2 MINERALIZATION

Mineralization is found at both the "west central" and "south central" zones on the JB claims (figures 4 and 5).

Mineralization at the "west central" zone along Meadow Creek consists of carbonate+quartz±mariposite alteration of andesite, lapilli tuff and limey sediments. Outcrop is scarce in the area and several old trenches have sloughed in. However weak to moderate carbonate±quartz alteration with lesser mariposite was noted at a number of locations. The mariposite alteration is significant as it is often associated with precious metal mineralization.

A number of samples of carbonate altered material were taken from the west central zone and several showed anomalous values in gold and silver. The most significant sample was a grab sample taken from a trench and gave 7500 ppb Au (0.282 oz/ton) and 67.5 ppm Ag. A second grab sample taken from the same trench also gave anomalous values of 436 ppb Au and 12.2 ppm Ag. Most of trench has sloughed in and the mineralization was not located in outcrop.

Two float samples of a quartz±carbonate±mariposite schist containing galena and sphalerite with minor chalcopyrite were taken from the "south central" zone near an old drill site. The samples gave anomalous gold values of 605 and 482 ppb and anomalous silver values of 165.1 and 258.4 ppm (5 and 7.5 ozs/ton).

4.0 GEOPHYSICS

4.1 MAGNETOMETER SURVEY

A total field magnetic survey was carried out on lines 19150E to 19650E (figure 6). The magnetic response was moderate with total field magnetic values ranging from 56462 to 57751 nT.

One prominent, roughly circular shaped magnetic high was defined on line 19650E centered at 8825N. The magnetic high is immediately north of Meadow Creek and is open to the east. The roughly circular shape of the magnetic high indicates it may be related to a small intrusive body. A number of dykes and/or sills of intrusive material are reported in the immediate vicinity of the magnetic high.

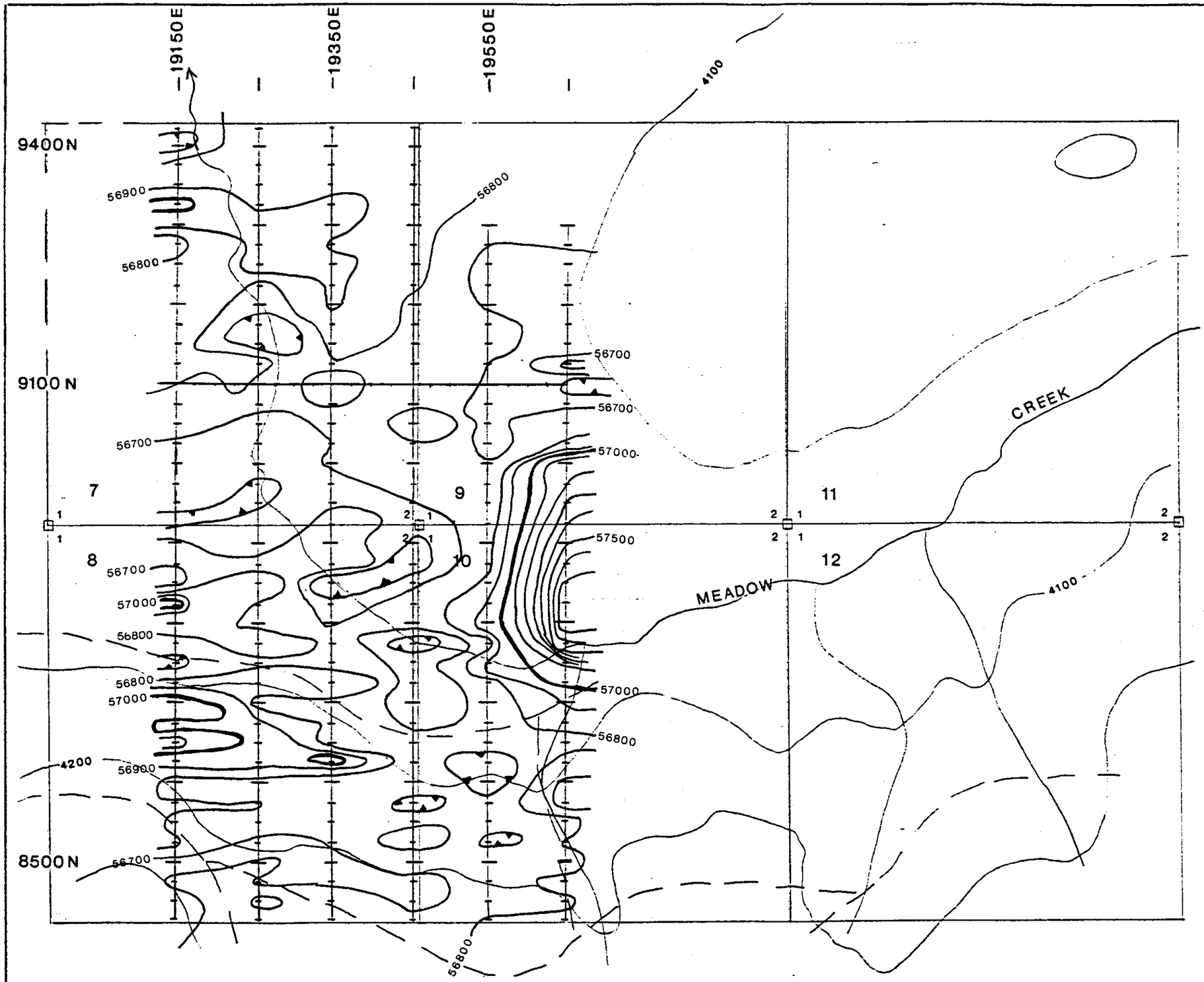
A series of small magnetic lows extending from 8975N on line 19250E to 8600N on line 19650E form a linear feature striking northwest-southeast. This linear feature which partially follows Meadow Creek would appear to be a fault.

4.2 VLF-EM SURVEY

The VLF-EM survey was carried out on lines 19150E to 19650E (figure 7). The lines were not generally influenced by topography as the survey area is relatively level.

A large number of VLF-EM conductors were outlined by the survey. Most of the conductors are of weak to moderate strength and exhibit short wavelengths. There is little outcrop exposure within the survey area and no causes are evident for the conductors.

Only one conductor system, A, was defined by the survey. This is a weak to moderate, east-west trending conductor occurring over four grid lines. Several weak conductors also occur within the magnetic high centered at 8825N on line 19650E.



N

LEGEND

- Grid station
- Highway, road
- 3000 Contour at 100' interval
- Claim post – 1 initial post, 2 final post
- 100 nT contour intervals
- 1000 nT " "
- MAGNETIC LOW

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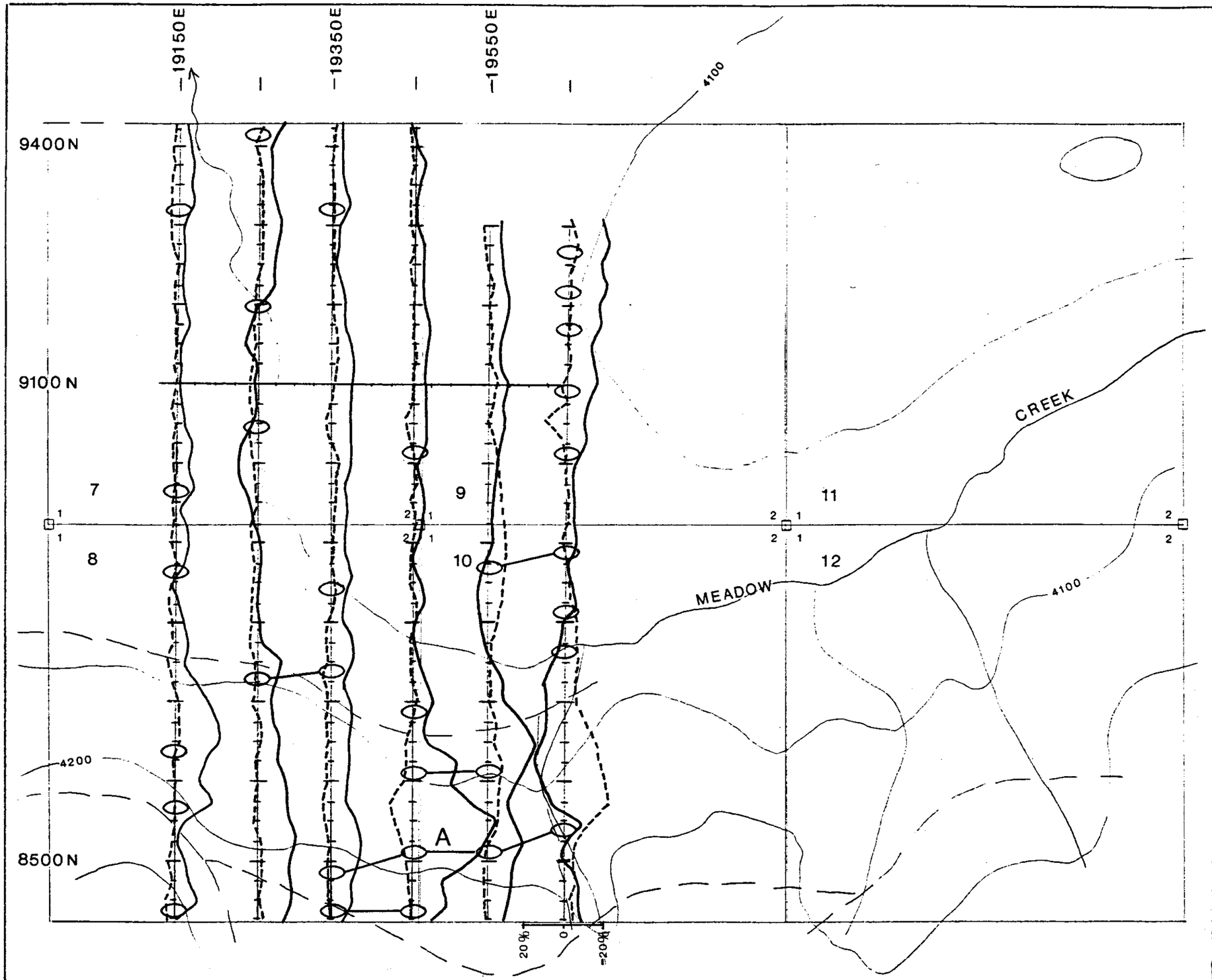
JB CLAIMS

MAGNETOMETER SURVEY

N.T.S. 92I-7E KAMLOOPS M.D., B.C.

0 100 200 300 METRES

SCALE 1:5000	DATE : May 1992
DRAWN BY : G.C.	FIGURE Nº. 6



N

Seattle

LEGEND

- Grid station
- Highway, road
- 3000 Contour at 100' interval
- Claim post – 1 initial post, 2 final post

NLK, SEATTLE, WASHINGTON
24.8 KHz

- Anomalous inflection (In-phase)
- In-phase
- Quadrature
- VLF-EM conductor

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JB CLAIMS
VLF-EM PROFILES (SEATTLE)

N.T.S. 92 I-7E KAMLOOPS M.D., B.C.

0 100 200 300 METRES

SCALE 1:5000	DATE : May 1992
DRAWN BY : G.C.	FIGURE Nº. 7

5.0 CONCLUSIONS AND RECOMMENDATIONS

The 1992 program consisted of establishing and re-establishing grid lines on the "south central zone" of the Meadow Creek grid and carrying out magnetometer and VLF-EM surveys on them.

Two magnetic features were outlined by the survey. A prominent, roughly circular magnetic high centered at 8825N on line 19650E may be the expression of a buried intrusive body. A number of northwest-southeast trending magnetic lows form a linear feature cutting across the central portion of the grid. This feature may represent a fault zone.

A large number of weak to moderate conductors were delineated by the VLF-EM survey. However no causes are evident for the conductors due to lack of outcrop or other geological information.

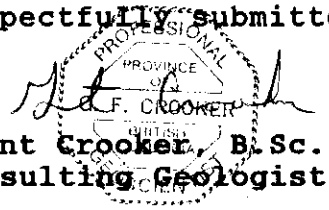
Recommendations are as follows:

1) The grid should be extended over the remainder of the property to allow completion of the magnetometer and VLF-EM surveys.

2) Geological mapping should be carried out over the property and the geochemical and geophysical anomalies should be checked by prospecting.

3) The geochemical anomalies and old trenches on the "west central" and "south central" zones of the Meadow Creek Grid should be evaluated by I.P. surveying, with follow up trenching and/or drilling.

Respectfully submitted,



Grant Crooker, B.Sc., P.Geo.,
Consulting Geologist

6.0 REFERENCES

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Assessment Reports

Report No.	Author	Company	Year	Type of Work
228	McBeath, S.	Vanex Minerals Ltd.	1958	Magnetometer Survey
234	Hill, Henry	Vanex Minerals Ltd.	1958	Magnetometer Survey
265	Hill, Henry	Dunmore Mines Ltd.	1959	Magnetometer Survey
266	Hill, Henry	Vanex Mines Ltd.	1959	Magnetometer Survey
3763	White, G.E.	Consolidated Standard Mines Ltd.	1972	Geochemical Survey
3764	White, G.E.	Consolidated Standard Mines Ltd.	1972	Induced Polarization Survey
4041	Nordin, G. Deleen, J.	Texada Mines Ltd.	1972	Soil Samples Magnetometer Survey
4042	Scott, A. Cochrane, D.R.	Texada Mines Ltd.	1972	Induced Polarization Self-Potent.
7268	Sookochoff, L.	Thunderbolt Resources Ltd.	1979	Magnetometer VLF Surveys

7.0 CERTIFICATE OF QUALIFICATIONS

I, Grant F. Crooker, of Upper Bench Road, Keremeos, in the Province of British Columbia, hereby certify as follows:

1. That I graduated from the University of British Columbia in 1972 with a Bachelor of Science Degree in Geology.

2. That I have prospected and actively pursued geology prior to my graduation and have practised my profession since 1972.

3. That I am a member of the Canadian Institute of Mining and Metallurgy.

4. That I am a Fellow of the Geological Association of Canada.

5. That I am a Professional Geoscientist registered with the Association of Professional Engineers and Geoscientists of the Province of British Columbia.

6. That I am the owner of the JB 1 to 12 claims.

Dated this 26th day of May, 1992, at Keremeos, in the Province of British Columbia.

PROFESSIONAL ENGINEERS AND GEOSCIENTISTS PROVINCE OF BRITISH COLUMBIA GRANT F. CROOKER

Grant Crooker, B.Sc., P.Geo.,
Consulting Geologist

Appendix I

GEOPHYSICAL EQUIPMENT SPECIFICATIONS

MP-2 PROTON PRECESSION MAGNETOMETER

Resolution:	1 gamma
Total Field Accuracy:	± gamma over full operating range
Range:	20,000 to 100,000 gammas in 25 overlapping steps.
Internal Measuring Program:	A reading appears 1.5 seconds after depression of Operate Switch & remains displayed for 2.2 secs. Recycling feature permits automatic repetitive readings at 3.7 sec. intervals.
External Trigger:	External trigger input permits use of sampling intervals longer than 3.7 seconds.
Display:	5 digit LED readout displaying total magnetic field in gammas or normalized battery voltage.
Data Output:	Multiplied precession frequency and gate time outputs for base station recording using interfacing optionally available from Scintrex.
Gradient Tolerance:	Up to 5,000 gammas/meter.
Power Source:	8 size D cells ≈25,000 readings at 25° C under reasonable conditions.
Sensor:	Omnidirectional, shielded, noise-cancelling dual coil, optimized for high gradient tolerance.
Harness:	Complete for operation with staff or back pack sensor.
Operating Temperature Range:	-35 to +60° C.
Size:	Console, 8 x 16 x 25 cm; Sensor, 8 x 15 cm; Staff 30 x 66 cm;
Weights:	Console, 1.8 kg; Sensor, 1.3 kg; Staff, 0.6 kg;
Manufacturer:	Scintrex 222 Snidercroft Road Concord, Ontario

GEONICS LIMITED
VLF EM 16

Source of Primary Field	VLF transmitting stations
Transmitting Stations Used:	Any desired station frequency can be supplied with the instrument in the form of plug-in tuning units. Two tuning units can be plugged in at one time. A switch selects either station.
Operating Frequency Range:	About 15-25 Hz.
Parameters Measured:	1- The vertical in-phase component (tangent of the tilt angle of the polarization ellipsoid). 2- The vertical out-of-phase (quad -rature) component (the short axis of the polarization ellipsoid compared to the long axis).
Method of Reading:	In-phase from a mechanical inclinometer and quadrature from a calibrated dial. Nulling by audio tone
Scale Range:	In-phase ± 150%; quadrature ±40%
Readability:	±1%
Operating Temperature Range:	-40 to 50° C.
Operating Controls:	ON-OFF switch, battery testing push button, station selector, switch, volume control, quadrature dial ±40%, inclinometer ± 150%
Power Supply:	6 size AA alkaline cells ≈200 hrs.
Dimensions:	42 x 14 x 9 cm (16 x 5.5 x 3.5 in)
Weight:	1.6 kg. (3.5 lbs)
Instrument Supplied With:	Monotonic speaker, carrying case, manual of operation, 3 station selector plug-in tuning units (additional frequencies are optional) set of batteries.
Manufacturer:	Geonics Limited 1745 Meyerside Drive/Unit 8 Mississauga, Ontatio L5T 1C5

Appendix II

MAGNETOMETER AND VLF-EM DATA

Grant Crooker Data Listing Line & Station + = northing/easting
Area: JB Claims - = southing/westing
Grid: Meadow Creek File Name: meadow .xyz
Date: May, 1992 VLF-EM and magnetometer surveys
Instrument Type: Details
Scintres MP-2 Corrected total field magnetic values
Geonics EM-16 Facing northwesterly, Seattle
Data Types #1 Corrected total field magnetic values
#2 VLF-EM In-Phase Values, Seattle
#3 VLF-EM Quadrature Values, Seattle

E/W Line #	N/S Station	# 1.	# 2.	# 3.	# 4.	# 5.	# 6.
line 19150							
19150	8425	56662	-2	4			
19150	8450	56650	-11	5			
19150	8475	56743	-6	-2			
19150	8500	56657	-5	4			
19150	8525	56831	-2	2			
19150	8550	56705	-5	1			
19150	8575	56809	-18	0			
19150	8600	56756	-11	0			
19150	8625	56951	-14	1			
19150	8650	57945	-23	-1			
19150	8675	56914	-20	-1			
19150	8700	57340	-16	-1			
19150	8725	56803	-10	-1			
19150	8750	56661	-4	4			
19150	8775	56749	-5	2			
19150	8800	56859	-4	2			
19150	8825	57026	-3	4			
19150	8850	56694	3	3			
19150	8875	56703	-3	0			
19150	8900	56721	-6	2			
19150	8925	56587	-5	2			
19150	8950	56663	-4	1			
19150	8975	56724	-9	0			
19150	9000	56694	-7	1			
19150	9025	56613	-8	2			
19150	9050	56780	-3	1			
19150	9075	56789	-3	2			
19150	9100	56879	-2	0			
19150	9125	56857	-3	1			
19150	9150	56803	-4	0			
19150	9175	56821	-7	0			
19150	9200	56831	-5	1			
19150	9225	56812	-3	1			
19150	9250	56800	-4	0			
19150	9275	56774	-4	3			
19150	9300	56902	-4	4			
19150	9325	57105	-8	3			
19150	9350	56852	-7	3			
19150	9375	56844	-8	2			
19150	9400	56678	-7	3			

19150	9425	56729	-5	2
line 19250				
19250	8425	56776	-13	-2
19250	8450	56836	-16	-1
19250	8475	56647	-17	-1
19250	8500	56722	-17	-2
19250	8525	56690	-19	-2
19250	8550	56774	-16	2
19250	8575	56800	-14	2
19250	8600	56799	-13	0
19250	8625	56922	-9	2
19250	8650	56988	-11	-2
19250	8675	56937	-8	-1
19250	8700	56769	-7	3
19250	8725	56875	-9	2
19250	8750	56787	-12	2
19250	8775	56875	-2	4
19250	8800	56787	-2	3
19250	8825	56795	0	3
19250	8850	56922	-2	2
19250	8875	56762	-2	2
19250	8900	56662	-1	4
19250	8925	56617	1	4
19250	8950	56583	4	1
19250	8975	56584	9	1
19250	9000	56651	10	3
19250	9025	56636	9	5
19250	9050	56630	4	4
19250	9075	56745	0	4
19250	9100	56775	2	4
19250	9125	56809	0	3
19250	9150	56670	7	2
19250	9175	56661	4	2
19250	9200	56763	-1	1
19250	9225	56785	-8	1
19250	9250	56868	-8	-1
19250	9275	56978	-10	-1
19250	9300	56949	-12	-1
19250	9325	56894	-8	-2
19250	9350	56886	-7	-2
19250	9375	56873	-7	-1
19250	9400	56882	-7	-1
19250	9425	56857	-11	-2
line 19350				
19350	8425	56777	-6	0
19350	8450	56746	-10	1
19350	8475	56695	-10	2
19350	8500	56669	-14	2
19350	8525	56707	-15	1
19350	8550	56759	-12	4
19350	8575	56818	-7	4
19350	8600	56778	-8	2
19350	8625	57003	-10	3
19350	8650	56713	-9	1

19350	8675	56797	-10	3
19350	8700	56778	-10	2
19350	8725	56995	-7	4
19350	8750	56750	-12	1
19350	8775	56793	-11	2
19350	8800	56697	-6	1
19350	8825	56665	-6	-2
19350	8850	56462	-10	-3
19350	8875	56810	-7	-2
19350	8900	56764	-7	-2
19350	8925	56774	-8	-2
19350	8950	56682	-8	-3
19350	8975	56643	-7	-3
19350	9000	56711	-10	-5
19350	9025	56698	-10	0
19350	9050	56741	-9	2
19350	9075	56808	-10	-1
19350	9100	56819	-11	-1
19350	9125	56787	-11	3
19350	9150	56854	-10	3
19350	9175	56869	-7	2
19350	9200	56904	-8	1
19350	9225	56908	-6	0
19350	9250	56920	-3	-1
19350	9275	56875	-5	-1
19350	9300	56914	-5	-1
19350	9325	56927	-10	0
19350	9350	56874	-7	-1
19350	9375	56901	-6	0
19350	9400	56930	-6	-1
19350	9425	56907	-6	1
line 19450				
19450	8425	56739	-10	0
19450	8450	56672	-18	1
19450	8475	56672	-16	3
19450	8500	56771	-32	6
19450	8525	56883	-39	7
19450	8550	56787	-43	9
19450	8575	56633	-28	11
19450	8600	56740	-19	5
19450	8625	56722	-23	3
19450	8650	56732	-7	3
19450	8675	56682	-6	0
19450	8700	56596	-10	-2
19450	8725	56660	-8	0
19450	8750	56632	-3	1
19450	8775	56498	-2	1
19450	8800	56727	-3	-2
19450	8825	56739	-6	-1
19450	8850	56657	-4	1
19450	8875	56584	-2	1
19450	8900	56590	-4	0
19450	8925	56650	-5	-2
19450	8950	56697	-6	0

19450	8975	56758	-5	-2
19450	9000	56755	-3	-1
19450	9025	56796	-7	0
19450	9050	56842	-8	4
19450	9075	56787	-8	0
19450	9100	56724	-7	0
19450	9125	56769	-7	-1
19450	9150	56769	-7	0
19450	9175	56785	-8	0
19450	9200	56778	-5	0
19450	9225	56808	-5	0
19450	9250	56811	-5	2
19450	9275	56821	-5	0
19450	9300	56829	-2	1
19450	9325	56835	-3	1
19450	9350	56844	-4	1
19450	9375	56837	-6	0
19450	9400	56863	-2	1
19450	9425	56826	-2	2
line 19550				
19550	8425	56816	-8	1
19550	8450	56774	-11	2
19550	8475	56751	-12	2
19550	8500	56773	-13	2
19550	8525	56676	-18	-2
19550	8550	56732	-13	-5
19550	8575	56747	-10	-5
19550	8600	56669	-16	-6
19550	8625	56650	-21	-7
19550	8650	56743	-24	-3
19550	8675	56742	-18	-4
19550	8700	56732	-8	-1
19550	8725	56740	-8	-1
19550	8750	56919	-2	-2
19550	8775	56775	0	-2
19550	8800	56950	3	-5
19550	8825	56900	4	-7
19550	8850	56840	4	-8
19550	8875	56781	-1	-9
19550	8900	56735	-3	-9
19550	8925	56736	-2	-8
19550	8950	56763	-3	-7
19550	8975	56757	-4	-6
19550	9000	56711	-5	-6
19550	9025	56664	-7	-4
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19550	9200	56691	-11	-1
19550	9225	56630	-9	-2
19550	9250	56665	-8	-1

19550	9275	56700	-7	1
19550	9300	56707	-7	-2
line 19650				
19650	8425	56875	-8	-4
19650	8450	56754	-7	-2
19650	8475	56890	-8	-5
19650	8500	56729	1	-4
19650	8525	56810	0	-6
19650	8550	56706	-8	-14
19650	8575	56919	7	-22
19650	8600	57000	11	-20
19650	8625	56853	15	-17
19650	8650	56768	13	-15
19650	8675	56877	10	-9
19650	8700	56910	10	-6
19650	8725	57033	10	-6
19650	8750	57138	6	-8
19650	8775	57603	1	-6
19650	8800	57751	1	-5
19650	8825	57733	-4	-4
19650	8850	57747	-1	-3
19650	8875	57646	-1	-2
19650	8900	57579	-6	1
19650	8925	57485	-4	-1
19650	8950	57388	-5	-1
19650	8975	57265	-4	0
19650	9000	57127	-5	0
19650	9025	56898	-10	1
19650	9050	56774	-9	12
19650	9075	56679	-11	-1
19650	9100	56551	-16	2
19650	9125	56803	-13	-2
19650	9150	56613	-12	-1
19650	9175	56602	-19	-2
19650	9200	56665	-16	-2
19650	9225	56680	-20	-2
19650	9250	56676	-18	-3
19650	9275	56704	-22	-5
19650	9300	56732	-19	-3
tie 9100				
9100	19150	56879		
9100	19175	56779		
9100	19200	56766		
9100	19225	56834		
9100	19250	56775		
9100	19275	56746		
9100	19300	56765		
9100	19325	56833		
9100	19350	56819		
9100	19375	56822		
9100	19400	56782		
9100	19425	56753		
9100	19450	56724		
9100	19475	56743		

9100	19500	56779
9100	19525	56790
9100	19550	56684
9100	19575	56622
9100	19600	56636
9100	19625	56653
9100	19650	56551

Appendix III

COST STATEMENT

COST STATEMENT

SALARIES		
- Grant Crooker, Geologist April 27-30, May 1, 2, 1992 6 days @ $ 400.00/day		$ 2,400.00
MEALS AND ACCOMODATION		
- Grant Crooker - 3 days @ $ 60.00/day		180.00
TRANSPORTATION		
- Vehicle Rental (Chev 3/4 ton 4x4) April 27-29, 1992 3 days @ $ 60.00/day		180.00
- Gasoline		101.42
EQUIPMENT RENTAL		
- VLF-EM - Geonics EM-16 April 27-29, 1992 3 days @ $ 25.00/day		75.00
- Magnetometer - Scintrex MP-2 April 27-29, 1992 3 days @ $ 25.00/day		75.00
SUPPLIES		
- Hipchain thread, flagging, etc.		50.00
DRAUGHTING		175.00
PREPARATION OF REPORT		
- Secretarial, reproduction, telephone, office overhead etc.		250.00
	Total	**$ 3,486.42**